

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1.-51. (Canceled)

52. (Currently Amended) A method for forming multilayered substrates, the method comprising:

providing a donor substrate comprising an overlying film of material to be detached;

coupling the film of material from the donor substrate to a transfer substrate;

releasing the film of material from the donor substrate, while maintaining attachment to the transfer substrate, the releasing comprising,

providing a first energy to a selected region of the donor substrate to initiate a controlled cleaving action, and

providing a second energy lower than the first energy to sustain the controlled cleaving action in order to free the overlying film of material from the donor substrate; and

coupling the film of material on the transfer substrate to a handle substrate;

transferring the film of material from the transfer substrate to the handle substrate to free the film of material from the transfer substrate while providing the film of material on the handle substrate.

53-55. (Canceled)

56. (Previously Presented) The method of claim 52 wherein the coupling is provided using a bonding technique selected from a group consisting of electrostatic, adhesive, and interatomic.

57. (Currently Amended) The method of claim 52 wherein the transfer substrate can be made of a material selected from a group consisting of a dielectric material [[or]] and a conductive material.

58. (Previously Presented) The method of claim 57 wherein the dielectric material is selected from quartz, glass, sapphire, silicon nitride, and silicon dioxide.

59. (Previously Presented) The method of claim 57 wherein the conductive material is selected from a group consisting of silicon, silicon carbide, polysilicon, group III/V materials, and metal.

60. (Previously Presented) The method of claim 52 wherein the transfer substrate comprises a plastic material.

61. (Previously Presented) The method of claim 60 wherein the plastic material is selected from a polyimide-based material.

62. (Previously Presented) The method of claim 52 wherein the film of material has been formed using a controlled cleaving action before the coupling of the film of material on the transfer substrate.

63. (Previously Presented) The method of claim 52 wherein the film of material on the donor substrate has been detached but not removed.

64. (Previously Presented) The method of claim 52 further comprising subjecting the film of material on the transfer substrate to a first process.

65. (Previously Presented) The method of claim 52 further comprising subjecting the film of material on the transfer substrate to a second process.

66. (Previously Presented) The method of claim 52 wherein providing the first energy comprises providing energy from at least one of a chemical source, a mechanical source, an electrical source, and a thermal source.

67. (Previously Presented) The method of claim 66 wherein the first energy is applied as at least one of flood, time-varying, spatially varying, and continuous.

68. (Previously Presented) The method of claim 66 wherein providing the second energy comprises providing energy from at least one of a chemical source, a mechanical source, an electrical source, and a thermal source.

69. (Previously Presented) The method of claim 68 wherein the second energy is applied as at least one of flood, time-varying, spatially varying, and continuous.

70. (Previously Presented) The method of claim 52 wherein the donor substrate comprises a region between the overlying film of material to be detached and a portion of the donor substrate.

71. (Previously Presented) The method of claim 52 wherein the donor substrate comprises a plurality of hydrogen particles between the overlying film of material to be detached and a portion of the donor substrate.

72. (Previously Presented) The method of claim 52 wherein the donor substrate comprises silicon material.

73. (Previously Presented) The method of claim 52 wherein the donor substrate comprises a plurality of helium particles between the overlying film of material to be detached and a portion of the donor substrate.

74. (Previously Presented) The method of claim 73 wherein the donor substrate comprises a plurality of hydrogen particles between the overlying film of material to be detached and a portion of the donor substrate.

75. (Previously Presented) The method of claim 52 further comprising implanting hydrogen into the donor substrate between the overlying film of material to be detached and a portion of the donor substrate.

76. (Previously Presented) The method of claim 52 further comprising implanting helium into the donor substrate between the overlying film of material to be detached and a portion of the donor substrate.

77. (Previously Presented) The method of claim 76 further comprising implanting hydrogen into the donor substrate between the overlying film of material to be detached and a portion of the donor substrate.

78. (Previously Presented) A method for forming multilayered substrates, the method comprising:

providing a donor substrate comprising a surface region;

implanting a plurality of particles through the surface region into the donor substrate to form an overlying film of material to be detached from a portion of the donor substrate;

coupling the film of material from the donor substrate to a transfer substrate;

releasing the film of material from the donor substrate, while maintaining attachment to the transfer substrate, the releasing comprising,

providing a first energy to a selected region of the donor substrate to initiate a controlled cleaving action, and

providing a second energy lower than the first energy to sustain the controlled cleaving action in order to free the overlying film from the donor substrate; and

coupling the film of material on the transfer substrate to a handle substrate;

transferring the film of material from the transfer substrate to the handle substrate to free the film of material from the transfer substrate while providing the film of material on the handle substrate.

79. (Previously Presented) The method of claim 78 wherein the plurality of particles includes hydrogen.

80. (Previously Presented) The method of claim 78 wherein the plurality of particles includes hydrogen in combination with helium.

81. (Previously Presented) The method of claim 78 wherein the plurality of particles includes hydrogen in combination with a rare gas.

82. (Previously Presented) The method of claim 78 wherein at least one of the plurality of particles is derived from a source selected from the group consisting of hydrogen gas, helium gas, water vapor, methane, and hydrogen compounds.

83. (Previously Presented) The method of claim 78 wherein at least one of the plurality of particles is selected from the group consisting of neutral molecules, neutral atoms, charged molecules, charged atoms, and electrons.

84. (Previously Presented) The method of claim 78 further comprising implanting a second plurality of particles through the surface region into the donor substrate.

85. (Previously Presented) The method of claim 84 wherein the second plurality of particles includes hydrogen.

86. (Currently Amended) The method of claim 84 wherein one of the ~~first~~ plurality of particles and the second plurality of particles includes hydrogen, and the other of the ~~first~~ plurality of particles and the second plurality of particles includes helium.

87. (Currently Amended) The method of claim 84 wherein one of the ~~first~~ plurality of particles and the second plurality of particles includes hydrogen, and the other of the ~~first~~ plurality of particles and the second plurality of particles includes a rare gas.

88. (Previously Presented) The method of claim 84 wherein at least one of the particles of the first plurality of ~~first~~ particles and the second plurality of ~~second~~ particles is derived from a source selected from the group consisting of hydrogen gas, helium gas, water vapor, methane, and hydrogen compounds.

89. (Currently Amended) The method of claim 84 wherein at least one of the particles of the first plurality of ~~first~~ particles and the second plurality of ~~second~~ particles is derived from a source selected from the group consisting of neutral molecules, neutral atoms, charged molecules, charged atoms, and electrons.

90. (Currently Amended) The method of claim 78 wherein the donor substrate further comprises a selected region between the overlying film of material to be detached and the portion of the donor substrate.

91. (Previously Presented) The method of claim 90 wherein at least one of the plurality of particles is provided in the selected region.

92. (Previously Presented) The method of claim 90 wherein the film of material is released from the donor substrate along a cleave front, and at least one of the plurality of particles is provided in the vicinity of the cleave front.

93. (Previously Presented) The method of claim 90 wherein at least one of the plurality of particles remains in the overlying film of material after the releasing.